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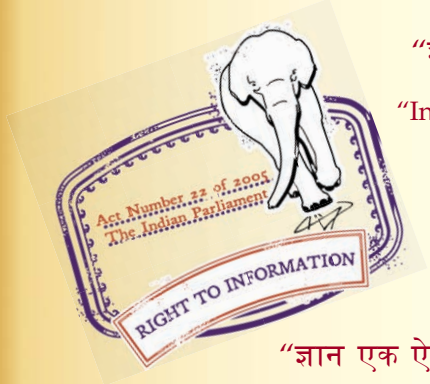

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(Reaffirmed 2003)

Indian Standard

SPECIFICATION FOR ELEVATED TYPE AERODROME LIGHTING FITTINGS

PART II FIXED FOCUS HIGH INTENSITY BIDIRECTIONAL RUNWAY EDGE LIGHTING FITTINGS

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SPECIFICATION FOR ELEVATED TYPE AERODROME LIGHTING FITTINGS

PART II FIXED FOCUS HIGH INTENSITY BIDIRECTIONAL RUNWAY EDGE LIGHTING FITTINGS

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SPECIFICATION FOR ELEVATED TYPE AERODROME LIGHTING FITTINGS

PART II FIXED FOCUS HIGH INTENSITY BIDIRECTIONAL RUNWAY EDGE LIGHTING FITTINGS

0. FOREWORD

0.1 This Indian Standard (Part II) was adopted by the Indian Standards Institution on 20 August 1976, after the draft finalized by the Illuminating Engineering Sectional Committee had been approved by the Electrotechnical Division Council.

0.2 This standard is intended to deal with specific requirements of the elevated type fixed focus high intensity bidirectional runway edge lighting fittings, in order to ensure their safe performance, good construction and high class of workmanship.

0.3 This standard (Part II) is one of the series of Indian Standards on elevated type aerodrome lighting fittings. This standard shall be read in conjuction with IS : 7785 (Part I)-1975*.

0.4 In preparing this standard, assistance has been derived from the following:

International Standards and Recommended Practices : Aerodromes Annex-14-1971. Ed 6. International Civil Aviation Organization.

Specification No. 1258-1-(1969) Specification for aviation lighting fittings. Department of Transport (Air Services), Canada.

Advisory Circular No. 150/5345-20-1967 Specification for L-802 Runway and strip light. Federal Aviation Administration (USA).

Advisory Circular No. 150/5345-9C-1969 Specification for L-819 Fixed focus bidirectional high intensity fittings. Federal Aviation Administration (USA).

Advisory Circular No. 150/4345-26A-1971 FAA-L-823 Plug and receptacles, cable connectors. Federal Aviation Administration (USA).

Military Specification MIL-C-25050A (ASG)-1963 General requirement for colors, aeronautical lights and lighting equipment. Federal Aviation Administration (USA).

*Specification for elevated type aerodrome lighting fittings: Part I General requirements,

0.5 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard (Part II) covers the specific requirements for the elevated type fixed focus high intensity bidirectional runway edge lighting fittings.

2. TERMINOLOGY

2.1 For the purpose of this standard, the definitions given in IS : 1885 (Part XVI/Sec 1)-1968† and IS : 1885 (Part XVI/Sec 2)-1968‡ shall apply.

3. CONDITIONS OF USE

3.1 In additions to conditions specified in **3.1** and **3.2** of IS : 7785 (Part I)-1975§, the lighting fitting shall be designed to withstand the blast effects from jet engines including wind velocities up to 560 km/h.

3.2 The fittings shall be suitable for use on systems with a voltage not greater than 250 V rms to earth.

4. DETAILED REQUIREMENTS

4.1 The lighting fitting shall consist of the optical system with filters/shields as may be required. It shall also include a housing, leads, breakable coupling(s), base plate with pipe column/stake, as may be required. They shall conform to IS : 7785 (Part I)-1975§.

4.2 The fitting shall be suitably designed for housing a maximum of 210 W 6·6 A lamp, so as to serve as a high intensity lighting fitting [*see* Indian Standard 'Specification for lamps for aerodrome lighting fittings' (under preparation)].

4.3 The lighting fitting shall be supplied with a clear lens/filter, when it is intended for runway edge lighting.

*Rules for rounding off numerical values (*revised*).

†Electrotechnical vocabulary: Part XVI Lighting, Section 1 General aspects.

‡Electrotechnical vocabulary: Part XVI Lighting, Section 2 General illumination lighting fittings and lighting for traffic and signalling.

§Specification for elevated type aerodrome lighting fittings: Part I General requirements.

4.4 When used as a threshold lighting fitting, it shall be supplied with 180° green lens/filter and 180° red lens/filter for the optical system.

4.5 The provision of filter (180°/360°) shield and its colour shall be agreed between the purchaser and the supplier.

4.6 The light distribution shall be tested with a clear lens and a 210 W 6·6 A lamp operated at or corrected to 4 500 lumens fitted to the runway edge lighting fittings. The light distribution shall be in accordance with or excess of values of candelas specified in **4.7** to **4.10**.

4.7 The light distribution shall be asymmetrical with front and rear beam having an elevation of 4·5° and a toe-in-angle of 3·5° (the corresponding longitudinal angles are 86·5° and 273·5°). The 90° to 270° horizontal line is parallel to the runway centre line and the 0° horizontal direction is toward and perpendicular to the runway centre line.

4.8 The minimum light intensity in the beam shall be 20 000 candela in the rectangular beam of 5° horizontal and 4° vertical with rounded corners of 2° radii at 20 000 candela and 5 000 candela in 10° horizontal and 9° vertical with rounded corners of 4° radii.

4.9 The beam axis shall be within 1·5° of the 4·5° elevation and the 3·5° toe-in-angles when the light has been properly levelled and correctly aimed.

4.10 The light shall have a minimum of 400 candela from 92° to 268° horizontal at elevations of 4·5° to 12·5° vertical for circling guidance.

4.11 The maximum for a runway light shall be 100 candela from 320° to 40° horizontal at elevations of 0° to 15° vertical. It shall have a maximum of 50 000 candela in the main beam.

4.12 In all areas not otherwise specified, the minimum shall be 20 candela in all directions above the horizontal.

4.13 Where colour is specified, the candela values shall not be less than those obtained by multiplying the candela values specified above by the following:

Yellow	0·400
Green	0·150
Red	0·150

5. MARKING

5.1 Information to be Marked — Each light fitting shall be suitably and clearly marked with the following information:

a) Manufacturer's name or, trade-mark or both;

b) Model or type designation; and

c) Country of manufacture.

5.2 Method of Marking — Marking shall be legible and indelible and shall be made either on the fitting itself or on a name plate securely fixed thereto.

NOTE — The performance of marking is checked by inspection or by rubbing lightly with a piece of cloth, or by both methods.

5.3 A complete list of parts and installation instructions shall be furnished with each fittings. Sufficient drawings or instructions shall be provided to indicate clearly the method of installation.

5.4 The fittings may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. The ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

6. TESTS

6.1 Classification of Tests

6.1.1 *Type Tests* — The following shall constitute type tests:

a) Photometric test (*see* **6.2**),
b) Test for resistance to heat (*see* **6.3**),
c) Test for temperature shock (*see* **6.4**),
d) Test for bubble obstruction (*see* **6.5**),
e) Rain-proof test (*see* **6.6**),
f) Insulation resistance (dry) test (*see* **6.7**),
g) High voltage test (*see* **6.8**), and
h) Test for mechanical strength (*see* **6.9**).

6.1.2 *Acceptance Tests* — The following shall be carried out as acceptance tests:

a) Test for bubble obstruction (*see* **6.5**),
b) Rain-proof test (*see* **6.6**),
c) Insulation resistance (dry) test (*see* **6.7**), and
d) High voltage test (*see* **6.8**).

6.1.3 *Routine Tests* — The insulation resistance (dry) test (*see* **6.7**) and high voltage test (*see* **6.8**) shall be carried out as routine tests.

6.2 Photometric Test — The provisions of **5.8.2** of IS : 7785 (Part I)-1975* shall apply.

6.3 Test for Resistance to Heat — The provisions of **5.8.3** of IS : 7785 (Part I)-1975* shall apply.

6.4 Test for Temperature Shock — The provisions of **5.8.4** of IS : 7785 (Part I)-1975* shall apply.

6.5 Test for Bubble Obstruction — The provisions of **5.1.7** of IS : 7785 (Part I)-1975* shall apply.

6.6 Rain-Proof Test — The provisions of **5.8.6** of IS : 7785 (Part I)-1975* shall apply.

6.7 Insulation Resistance (Dry) Test — The provisions of **5.8.7** of IS : 7785 (Part I)-1975* shall apply.

6.8 High Voltage Test — The provisions of **5.8.8** of IS : 7785 (Part I)-1975* shall apply.

6.9 Test for Mechanical Strength — The provisions of **5.8.9** of IS : 7785 (Part I)-1975* shall apply.

*Specification for elevated type aerodrome lighting fittings: Part I General requirements.

INDIAN STANDARDS

ON

ILLUMINATING ENGINEERING

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1885 (Part XVI/Sec 1)-1968 Electrotechnical vocabulary: Part XVI Lighting, Section 1 General aspects

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1913-1969 General and safety requirements for electric lighting fittings (*first revision*)

1944-1970 Code of practice for lighting of public thoroughfares

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2206 (Part I)-1962 Flameproof electric lighting fittings: Part I Well-glass and bulkhead types

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